



NOTES

CRANIAL NERVE INJURY

GENERALLY, WHAT IS IT?

PATHOLOGY & CAUSES

- Brain/cranial nerves injury → neurological dysfunction

CAUSES

- Trauma (accidental, inflicted), autoimmune, infectious, idiopathic

DIAGNOSIS

DIAGNOSTIC IMAGING

CT scan/MRI

- Specific, focused neurological functioning tests

SIGNS & SYMPTOMS

- Varies widely
 - Area-dependent

TREATMENT

- Symptomatic complications, treat underlying causes

BELL'S PALSY

osms.it/bells-palsy

PATHOLOGY & CAUSES

- Lower motor neuron weakness of cranial nerve VII (facial nerve) → acute, peripheral facial palsy
- Adversely affects facial motor activity; lacrimal, salivary glands (parasympathetic fibers); taste (afferent fibers on anterior two-thirds of tongue); external auditory canal, pinna (somatic afferents)
- Etiology unknown
 - Potentially viral-associated ischemia, demyelination (e.g. [herpes zoster](#), herpes simplex (HSV), Epstein-Barr virus, [Lyme disease](#))

RISK FACTORS

- Age (peak incidence > 50), [diabetes mellitus](#), pregnancy (third trimester), early postpartum

COMPLICATIONS

- Corneal exposure → keratitis, motor regeneration → oral incompetence, reinnervation “miswiring” → synkinesis (involuntary muscle movement)
- Incomplete sensory regeneration
 - Dysesthesia (unpleasant/abnormal touch), dysgeusia (distorted taste), ageusia (decreased taste)

VISIT...

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SIGNS & SYMPTOMS

- Unilateral facial weakness evolves rapidly over 48 hours
 - Eyebrow sags, eye won't close, mouth corner droops (drooling, difficulty eating/drinking), decreased tear production → ocular dryness, hyperacusis (↓ everyday sound tolerance), ageusia (decreased taste sensation)
- Prodromal symptoms (pre-onset)
 - Ear pain, dysacusis (sound distortion)
- See mnemonic: BELL'S Palsy



MNEMONIC: BELL'S Palsy

Symptoms of Bell's palsy

Blink reflex abnormal

Ear sensitivity

Lacrimation: deficient, excess

Loss of taste

Sudden onset

Palsy: CN VII nerve muscles
(All symptoms are unilateral)



Figure 71.1 An individual with Bell's palsy affecting the right side of the face.

DIAGNOSIS

LAB RESULTS

- Serologic testing if viral infection suspected

OTHER DIAGNOSTICS

- House–Brackmann facial nerve dysfunction classification
 - Grades facial muscle impairment degree
 - Normal, mild, moderate, moderately-severe, severe, total paralysis
- Palpebral-oculogyric reflex (Bell phenomenon)
 - Attempted eyelid closure → upward eye deviation
- Stethoscope loudness test
 - Individual listens to tuning fork through stethoscope
 - Hyperacusis indicates paralyzed stapedius muscle on affected side
- ↓ pinprick sensation in posterior auricular area
- ↓ taste
 - Sweetness, saltiness, acidity
- Motor nerve conduction studies (NCS)
 - Estimates axonal loss degree

TREATMENT

MEDICATIONS

- Corticosteroids
 - Symptom onset → begin within 3–4 days

OTHER INTERVENTIONS

- Artificial tears, eye patching
 - Reduce corneal damage risk
- Physical therapy (e.g. facial exercise, neuromuscular retraining)
- May resolve spontaneously within three weeks

TRIGEMINAL NEURALGIA

osms.it/trigeminal-neuralgia

PATHOLOGY & CAUSES

- AKA tic douloureux; stimulating facial trigger zone → intense, **stabbing**, paroxysmal pain in trigeminal nerve (cranial nerve V—usually V2/V3 subdivisions)
 - **Triggers:** **touching/moving tongue, lips, face; chewing**; shaving; brushing teeth; blowing nose; hot/cold drinks

TYPES

- Classic
 - Most common; unknown etiology, artery/vein compressing cranial nerve (CN) V root may → pain
- Secondary
 - Nonvascular lesion compressing nerve → pain

RISK FACTORS

- Biological sex (female > male)
- Age (peak incidence 50–60)
- Demyelinating disorders (e.g. multiple sclerosis)
- Postherpetic trigeminal neuropathy
- Acoustic neuroma
- Saccular aneurysm
- Vestibular schwannoma

SIGNS & SYMPTOMS

- Pain paroxysms
 - Last **one–several seconds**; may repeat; usually **unilateral**
- Dull pain between paroxysms
- Facial muscle spasms/autonomic symptoms (e.g. lacrimation, diffuse conjunctival injection, rhinorrhea)

DIAGNOSIS

DIAGNOSTIC IMAGING

CT scan/MRI

- May identify lesion/vascular compression
- Electromyography/trigeminal reflex testing
 - Measures muscles', controlling nerves' electrical activity

OTHER DIAGNOSTICS

- Classic trigeminal neuralgia
 - No clinically evident neurologic deficit, no better explanation via another diagnosis, ≥ three attacks of unilateral facial pain fulfilling criteria A and B
 - **A:** Occurs in ≥ one trigeminal nerve divisions, no radiation beyond trigeminal distribution
 - **B:** Pain has three or more of the following four characteristics: recurring paroxysmal attacks (< two minutes); severe intensity; shock-like, shooting, stabbing, sharp pain; stimulating affected facial side → > two attacks (other attacked may be spontaneous)

TREATMENT

MEDICATIONS

- Pain management

SURGERY

- Microvascular decompression
- Neuroablation
 - Rhizotomy with radiofrequency thermocoagulation/mechanical balloon compression/chemical (glycerol) injection
 - Radiosurgery
 - Peripheral neurectomy, nerve block